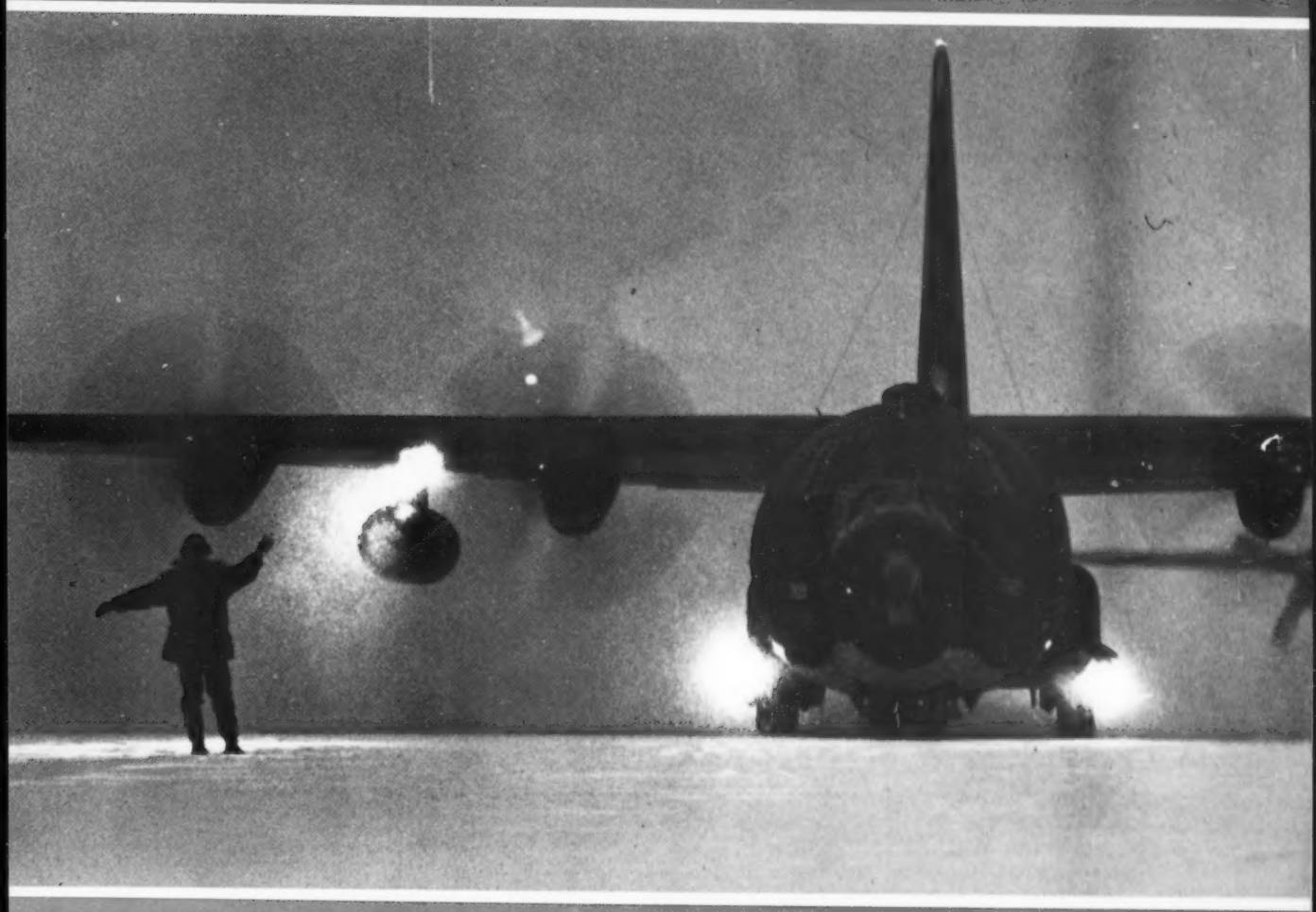
The MAC Flyer

DECEMBER 1979



Happy Holidays!

The MAC Flyer

MILITARY AIRLIFT COMMAND

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For Greater Safety and Efficiency
in MAC Air Operations.

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CINCMAC's Year-End Reflections

General Robert E. Huyser
Commander in Chief Military Airlift Command

As another year draws to a close, it is traditionally a time for introspection and reflection. For me, the past several months have been filled with adjusting to life back in the U.S.A. after some pretty hectic and challenging assignments in Europe and the Middle East, and "learning the ropes" in this multifaceted business of global airlift and services called Military Airlift Command. Although I already had considerable respect for the value of strategic and tactical airlift from my experiences as the number one user of that airlift in Europe, I must admit that being the CINC has affirmed even more deeply my opinion of MAC as an extremely vital cog in the nation's defense machinery.

In an age when perceptions of strength and resolve are important, the ability of our command to project the American image in a powerful and positive way on short notice, anyplace on earth, is a critical element in maintaining the confidence of our allies and heading off potential aggressors. MAC is literally the backbone of our deterrent capabilities. We're a command with a daily humanitarian mission *and* a daily constructive mission. All around the world, MAC's active and Reserve people represent our country in the best possible ways—including everything from "routine" resupply to such impressive, and often lifesaving, accomplishments as rescue, aeromedical evacuation, weather reconnaissance and research, audiovisual services, and disaster relief following man-made and natural catastrophies. We've got it all!

We certainly have much to be proud of and thankful for—a profession that contributes directly to our national security and an impressive array of aerospace hardware at our disposal. Perhaps even more important, we are an unparalleled team of talented and uniquely dedicated flyers and support people willing to go the extra mile regardless of the challenge.

We can take justifiable pride in our accomplishments and MAC's impressive and inspiring heritage of airlift, which dates back to our forerunners who flew the Hump, and saved Berlin with aerial resupply. But we also need to take time and rededicate ourselves to the protection and conservation of the precious national defense resources which have been entrusted to us. Prevention of mishaps and the needless waste of lives and equipment that result from them is as critical to our mission as our mission is to America's security.

Season's Greetings and Best Wishes to each of you and your families in the coming year.

What to Do Till the P.A.O. Arrives

by Major James G. Gibson II
Supervising Editor

You may be "just a crewmember", but you're the ranking USAF member on the scene, so you're elected by default to *meet the press.*

Lend us your imagination for a couple of minutes and try projecting yourself into the following scenario . . .

Let's say that you are involved in a "bad" landing, a controlled crash if you will, but it isn't quite bad enough to prevent you from walking away. Just as you are brushing the worst dust specks from your green bag, surveying the misshapen aluminum hulk that moments before was your aerial chariot, and thanking your lucky stars that you and your fellow crewmembers and pax have somehow cheated the grim reaper, a new challenge rears its ugly head.

Listening on his special aircraft-radio-frequency-band receiver, a clever and enterprising reporter overheard your emergency as it unfolded and has just materialized in front of you. He begins bombarding you with questions: "How many people were on board? What went wrong with the airplane? How many were killed? What condition are the victims in? When did you stop beating your wife? etc., etc." Before you can even answer the first salvo, the reporter turns to your copilot and fires a few more zingers at him, just to keep things moving along. You look around for

help, but there ain't none, brother. *You're* the Air Force's ranking man on the scene and *you* are nominated by default to meet the press.

"What now? Why me?" you ask nobody in particular as you try to buy time while the reporter stands there glaring and drumming his pencil on his notepad impatiently.

Having been around awhile, you've heard about Freedom of the Press, Freedom of Information, the Privacy Act, and you vaguely remember a briefing one time by the Public Affairs guy—back when he used to be called an Information Officer—that spelled out who says what to whom at the scene of an aircraft accident. But that was a long time ago, you're kinda dazed anyway, and "Clark Kent" here is really pressing you for a scoop 'cause he's got a deadline to meet for the Bulldog edition. Oh yeah, and he wants some good photos, too. Whatta ya gonna do, Bunkie? Give in? Spill the beans? Clam up? or What?

Well, let's loosen the thumbscrews for a minute, declare an "Academic Situation," like they used to back at Survival School, and take a look at some of the recommendations the Public Affairs "pros" have to offer for just such a dilemma.

Release Authority

The Public Affairs Officer (PAO for short) is the sole release authority for information related to military aircraft accidents. That sounds simple enough, but what do you tell Kent, "No Comment"? If you can't think of anything else at the time, that'll do, but the best answer is to simply explain that you're not at liberty to discuss the accident and that the reporter will have to wait 'till the PAO arrives and get the facts from him. Just remember, **all** queries from media types are to be referred to the PAO, regardless of whether the accident happens on an air base or in the civilian community.

Accidents on Military Property

Upon arrival, the PAO assumes full responsibility for all news media activities. Until he or she gets there, though, military persons at the scene such as crash rescue specialists, medical types, security guards, you, etc., should try to prevent media reps from endangering themselves by advising them of the possibilities of fire and explosions from fuel or other sources, for example. On military property, physical restraint can be imposed as a last resort. No attempt to prevent them from taking photos of the accident scene should be made, however, **unless** classified material is present. Photo restrictions will be enforced until the classified materials have been secured.

Accidents on Non-Military Property

In this case, military representatives cannot assume jurisdiction or control over the accident site. Advice can be given about the dangers associated with the wreckage, but no attempts will be made to prevent photos. If classified material is present, news media people should be informed that photographing it is a violation of Federal Statutes (Title 18, U.S. Code 795, 7967). Assistance, if needed, may be sought from police or other civilian authorities.

How Reporters' Questions Are Answered

As mentioned earlier, all requests for information such as number of people aboard, names, medical condition, cause of the accident, etc., must be referred to the PAO. He coordinates all queries with the appropriate staff agencies such as the legal beagles, the hospital, Personal Affairs, etc., and then makes a release. Note: The information in this paragraph constitutes a pretty good answer for you to give persistent reporters to let them know that you cannot tell them anything, and that there is a good reason for your silence. Also, you will sound more intelligent and a lot less blunt than if you resort to the old standby, "No comment," which has become passe in recent years.

So, don't sweat and don't fret, and don't let a newshound badger you into giving out information you are neither legally nor morally obligated to release or reveal. You never know when the opportunity may arise for you to be the Air Force representative at a crash site until the PAO arrives; but you'd better have some ideas in your memory banks on how to react, or the repercussions can be almost as dramatic as the crash itself.

The substance for this article came from Air Force Regulation 190-10. For more detailed guidance talk to your local P.A.O. --*Ed.*

Does the radar altimeter always measure absolute altitude? Absolutely not!

Radar Altimetry

The radar altimeter is an important aid for making a safe instrument approach, but, like its barometric cousin, it has some built-in limitations. Unlike those associated with the pressure altimeter, however, these shortcomings may not be well known by many crewmembers. Also, we use the radar altimeter on the C-130 and C-141 for low-level terrain following—something it wasn't originally designed to do.

On MAC's three Lockheed airlifters, the radar altimeter antenna is mounted in the left-main-landing-gear pod. The altimeter uses the Doppler principle to measure distance. The radar transmits a beam of energy from the antenna which bounces off the surface under the airplane and is received by the same antenna. Black boxes translate the time it takes the beam to make the round trip into a distance that is then displayed as absolute altitude on the instrument panel.

When the airplane is flying fairly wings level—like on an instrument approach—the system works great. But the radar altimeter *always* measures the distance perpendicular to its horizontal axis from the bottom of the airplane to the ground, regardless of bank angle. As our illustrations show, therein lies one problem with using it for terrain following. Take a close look at Figure 3 and you'll see that the wingtip clearance is less than 100 feet, even though the radar altimeter reads 300 feet. There are lots of trees on plenty of hillsides that are over 100 feet tall. This brings us to a second problem with using the radar altimeter as the primary low-altitude terrain-avoidance instrument: Many surfaces don't reflect radar waves too well and can give the altimeter false information. Among these possible natural scramblers are forest canopies, ice, snow, sand dunes and water. Several of these are mentioned in your Dash One. Finally, the radar altimeter doesn't measure the height of the terrain *ahead* of the airplane. In fact, it may not even measure the terrain under the nose of the aircraft. If there's a 250-foot cliff one mile in front of you and you're cruising along at 200 feet indicated altitude, the radar altimeter will continue to show 200 feet until you impact the cliff or pull up over it.

At best the radar altimeter is a guide. It tells you how high the bottom of the aircraft is above the ground right now, if you are wings level. It is completely ignorant of the terrain in front of, and to either side of, the airplane and is "faked out" by bank angles—so beware. If you understand the system and its limitations, it is an excellent approach aid; but safe low-level flying requires more than a check of the MDA light.

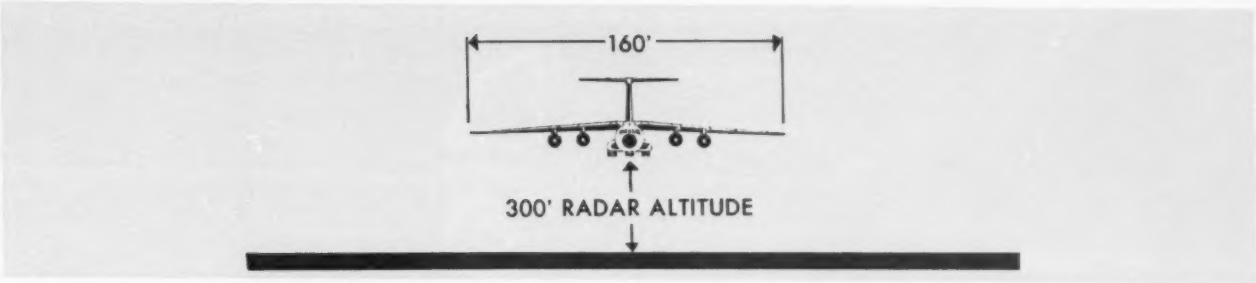


Figure 1. With wings level on an instrument final approach, the radar altimeter shows absolute altitude.

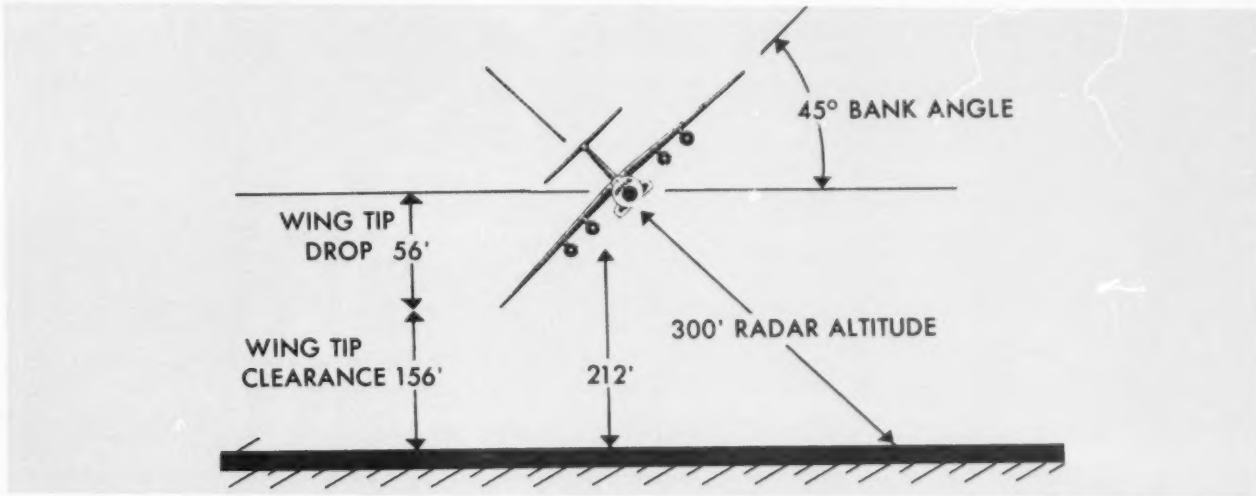


Figure 2, aircraft in 45° bank over level terrain. Note difference in actual and indicated altitude.

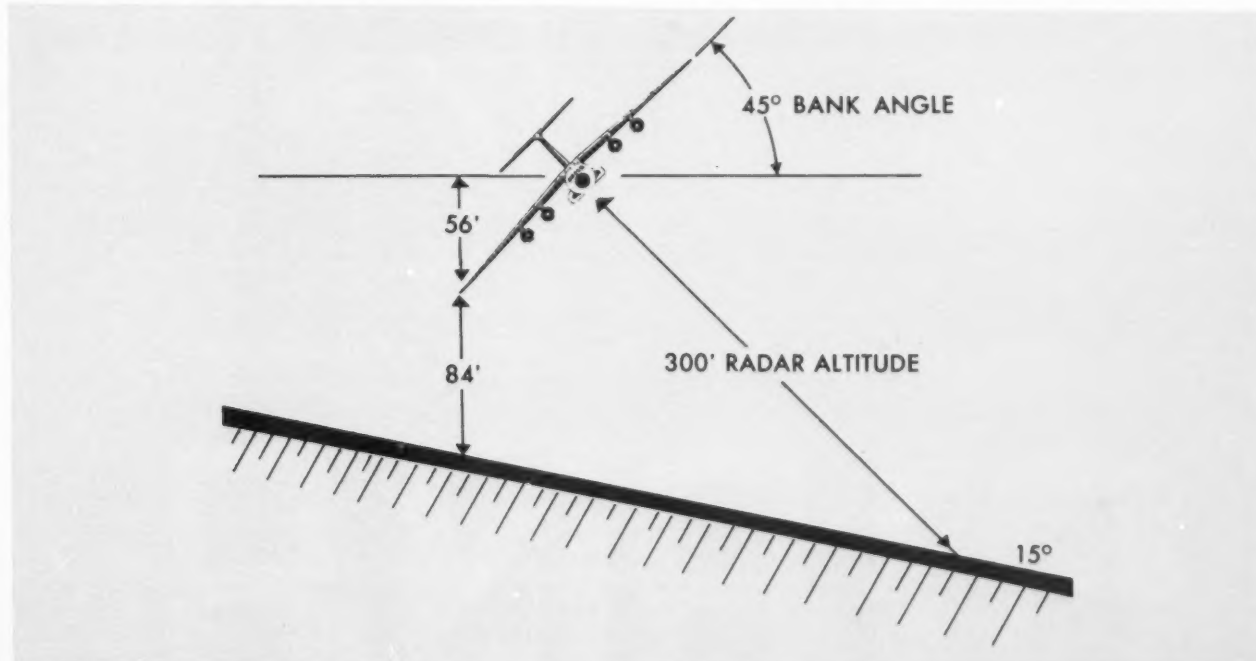


Figure 3. With aircraft in bank over sloping terrain, the altitude error can become large.

There's a lot more to her story than a run-of-the-mill accident report!
DIANA
Tony O'Loughlin '79

Honorable Mention, 1979 MAC Flying Safety Writing Contest

by Capt David W. Keith
37 ARRS
F. E. Warren AFB, Wyoming

Football

"Tell me more about football, John," pleaded Diana.

The young instructor pilot gave his student one of his best "Why me?" looks and turned back to the checklist. "You know that we confine our conversation to the run-up, until after we've taken off. Besides, just because you can juggle two developed trains of thought in your head at once, doesn't mean I can—I'm only human, you know! We'll continue your lesson on the finer points of life after we get to cruise altitude."

Captain John Moses continued his portion of the start-and-run-up checklist and promptly broke his own rule. While his aircraft commander candidate completed the start procedures, John watched her; but he wasn't thinking about the spinning rotor blades of the HH-81D helicopter. He was mildly bothered by an intuition he couldn't quite understand. He had been crewed with female chopper pilots before, so the feminine voice in the cockpit didn't bother him. But, this was the first time he had flown with a pilot like Diana. She just wasn't your basic, run-of-the-mill upgrade candidate. She was different: she never made any mistakes, for one thing, and that shook him up a little. And, as if things weren't confusing enough, John wasn't quite sure that his relationship with her hadn't gone beyond student-instructor.

As John's mind wandered further, he was yanked back to reality by an insistent call in his headset. "John, you promised to tell me more about football when we reached cruise altitude," scolded the right-seater. "We've been level for three minutes and we're due over the practice area in 15. If we don't start soon, I'll never learn anything new. Besides, that's the third time I had to call you. You *are* supposed to be watching me, aren't you?"

John detected the slightest indication of conceit, a seemingly tragic flaw in an otherwise immaculate facade. Could it really be? After the flight, John would have to discuss it with Diana, but right now he had 15 minutes to continue their ongoing lesson about America's favorite autumn pastime. Diana was intrigued by the interrelationships and intricate patterns which are such a fundamental part of good football. John, on the other hand, was merely an arm-chair athlete.

If you can hold the other team scoreless, you should rate at least a tie.

"Yesterday," he began "we started to discuss the importance of a good kicking game. This is an explosive time, when close games can suddenly get out of control—a critical moment in any contest. Although kick returning is an important part of any team's offensive repertoire, defending kicks is even more vital. A wise, old person once said that, if you can hold the other team scoreless, you'd rate at least a tie. And you don't need to be a computer to understand *that* little bit of mathematics. The key, of course, is good open-field tackling. I remember well a sorrowful time in my high school days when my team lost the conference championship because I missed a tackle during a kickoff return. That sure made a believer out of me.

"Any good team dedicates at least part of its weekly practice schedule to this crucial skill. After all, every coach since Knute Rockne has preached that you can't consistently play any better in a game than you do in practice. As the old adage goes, 'Practice makes perfect!'

"And now it's time for you to practice flying, Diana." John broke the football lesson off as they approached the training area. He quickly reviewed the mission profile. First, they would practice a couple of low-altitude autorotations and then enter the low-level navigation route. This would bring them to

the survivor. After they picked him up using the rescue hoist, they would complete the low-level egress. The exit point for the route was only minutes from homeplate, so they would barely have enough time to discuss the high points of the profile before landing.

As Diana entered the practice autorotation area, John quizzed her on the value of the height-velocity diagram. It wasn't necessary for him to probe too deeply; Diana had proven her knowledge frequently during previous flights. What John wanted to emphasize, though, was that no matter how knowledgeable or skillful a pilot is, there are certain times when an engine failure is catastrophic, to say the least. John Moses had to be sure that his charge was well aware of this. Diana calmly explained that she was completely familiar with the importance of the H-V restrictions. Somewhat impatiently, she stated that John's role was to provide rules of thumb for her to use during future nonstandard missions. Autorotations, after all, were so mechanical that any properly designed autopilot could handle them with ease. She was more interested in the rescue mission profile.

Except for a tendency to climb a little too abruptly during the power recoveries, Diana breezed through her autorotations with flying colors. As they proceeded to the entry point for the low-level route, John reviewed the importance of the height-velocity diagram one more time. "You were taking a chance climbing so steeply. If the engine had quit, we might have been too slow to properly recover. I'm not in the mood for a final landing, okay?"

"Nonsense, John," Diana said quietly. "Given our altitude, airspeed, and rpm, we were always in a safe envelope."

"That may be, Diana, but what if you guessed wrong or if you misread a gauge. Then you might not be able to handle an engine failure. Perhaps, a little bit larger safety margin might be in order. But I must admit, you do a great auto. Enough critique for now, we're almost at the entry point."

The route went well with Diana hitting each of 12 ingress checkpoints exactly and within one second of her estimates, all never more than ten feet above the trees along the route. John was impressed with her performance, realizing what a whole system of pilots as competent as Diana could mean to the success of future rescue missions. "Outstanding ingress," he complimented as the survivor came into view directly in front of the aircraft.

"Everyone is okay—except Diana."

"Why, thank you," Diana responded while she lowered the forest penerator. "I am pleased that you approve. After all, you are my teacher."

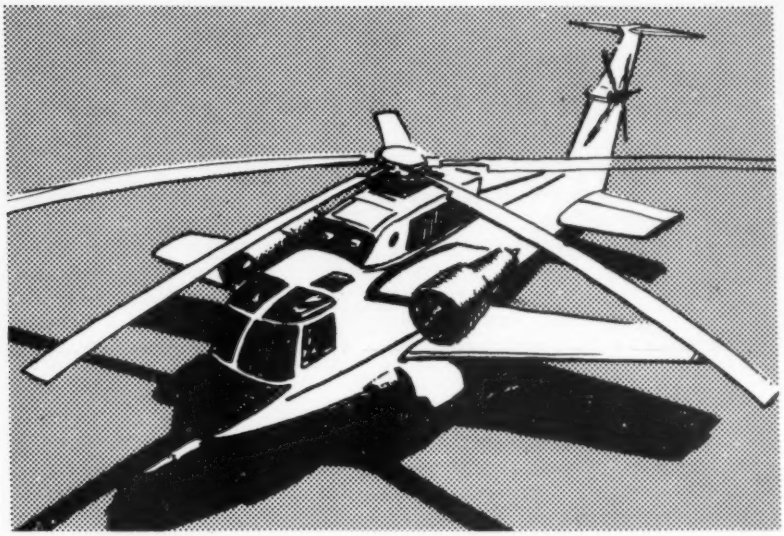
Once the survivor was secure in the cabin, Diana began her egress. Since the run-in had been a high speed dash, John decided to make the egress low-and-slow and tree-to-tree. Although the slow flight over the 100-foot trees scared John a little, he knew that Diana had the situation completely under control. No one could have been more surprised than he was when the low-rotor-rpm warning horn screamed in his ear. As he instinctively grabbed for the flight controls, he thought, just for a second, that he heard a scream. Then, the rotor blades slammed into the trees, and the aircraft began to yaw violently. Next, the tail boom smashed into a tree trunk, and the remains of the cabin plummeted the remaining 30 feet to the ground. The last recollection John had was something striking his head from behind, knocking him unconscious just before ground impact.

When John woke up, he was in a hospital bed with a doctor standing over him. He began a stream of questions: "What happened? How is the passenger? Mostly, how is Diana?" The grim look he received in reply told him that all was not well.

The doctor began slowly, "Everyone is okay . . . except Diana. But, before I go any further, I have to explain something. Diana was not like other 'people.' Right now she's gone, but not dead. That may be confusing to you now, but you have to understand that Diana was not human. She was an android, a top secret test project."

Shock rose in John's eyes, but deep inside he wasn't really surprised, even though he knew that he should be. That explains her nearly perfect flying the first time out, he thought to himself.

The doctor continued, "Since Herbert Simon's early research into artificial intelligence at Carnegie Institute, people had been pursuing the elusive smart machine—a computer capable of independent creative thought. It was almost 50 years, though, before the research began to bear fruit and approach the lofty expectations of the mid-seventies' visionaries. Once the ice was broken, however, and by the time Diana was built, many of the most complicated and dangerous tasks confronting man had been assumed by smart machines. It was only a matter of time before someone tried to adapt these new-fangled machines to flying helicopters.



"Diana (Digital Integrated Advanced Network Analysis) was a super-sophisticated robot. As an android, she could easily move in human society without compromising the top secret nature of the project. Although the mechanics involved in building her body were complicated, the crowing achievement was her brain. Thanks to super miniaturization, the engineers were able to fit a specially designed, second-generation Mark Five Tactical Pilotage Autopilot into her 'skull.' All of her bench tests exceeded design specs, and it became necessary to perform a thorough field test."

"Yes, but where did I enter into this, and where's Diana now?" asked John.

"You were chosen because you were considered to be the best HH-81D instructor pilot around. The true nature of the project was kept from you because we wanted a realistic test of how well 'pilots' like Diana could perform as substitute crewmembers. That's why you were led to believe that Diana was just another upgrade candidate. As to Diana's present whereabouts, I only know that she's in rebuild. But, that's enough excitement for now. You need some rest, and we can continue our discussion later this afternoon."

As the doctor left the room, John could hardly control his racing mind. The implications of a crewmember like Diana are astounding, he thought to himself. I can hardly imagine what a computer crew could accomplish during a combat SAR.

As John drifted to sleep, he wondered about the results of the accident investigation board. The doctor had left a synopsis of their initial investigation with him. This extract attributed the accident to a combination of factors. First, the engine had quit when contaminated fuel clogged the engine inlet nozzles, starving the engine. Further, an erroneous radar altimer had told Diana that they were higher than they actually were. Additionally, the helicopter was on a route segment which was experiencing some moderate, unpredictable turbulence. A classic chain of events. The mishap was purely a mechanical failure, if one considered Diana's errors in judgment to be mechanical. John Moses was totally exhonorated.

John wondered as he dropped off to sleep if he had probed into Diana's competency deeply enough. He also wondered if a machine could ever really appreciate the role of safety margins in protecting the delicate posterriors of real humans. After all, a machine could just make a quick stop at the 'garage' for rebuild, but a person only made one trip through life. More than anything else, though, John wondered whether the newly programmed Diana could ever realize that, "You play like you practice."

ABOUT THE AUTHOR

Captain Keith is a 1971 graduate of the Air Force Academy. His first assignment was to England AFB, Lousiana, as the 23d Security Police Squadron Operations Officer. He entered helicopter pilot training in 1973 at Fort Wolters, Texas. After graduation in 1974, he was checked out in the HH-53 and assigned to Thailand. While in Southeast Asia, he participated in the rescue of the *SS Mayaguez*. Coming back to the States, Capt Keith was assigned to Det 5, 37 ARRS, Malmstrom AFB, Montana. In 1977 he moved to F.E. Warren AFB, Wyoming, where he currently serves as Aircrew Stan/Eval Officer for the 37 ARRS.

Fill this Square

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ABOUT THE AUTHOR

This space reserved for the biographical sketch of a winner of the 1980 MAC Flying Safety Writing Contest.

We'd like you to help us fill this square with your photo and biographical sketch. We've reserved 12 of these spaces in upcoming issues of the *Flyer* for winners of the 1980 MAC Flying Safety Writing Contest. Every prize-winning article will be published with the author's byline, photo and "bio." The *Flyer* reaches MAC aviators around the world and is distributed to all the major air commands, U.S. and allied military services, major airlines and hundreds of private subscribers. Of course, we offer more than publication to our winners. Those who garner one of the top three places get a beautiful hardwood desk set, while honorable mention winners receive a handsome wall plaque attesting to their literary prowess.

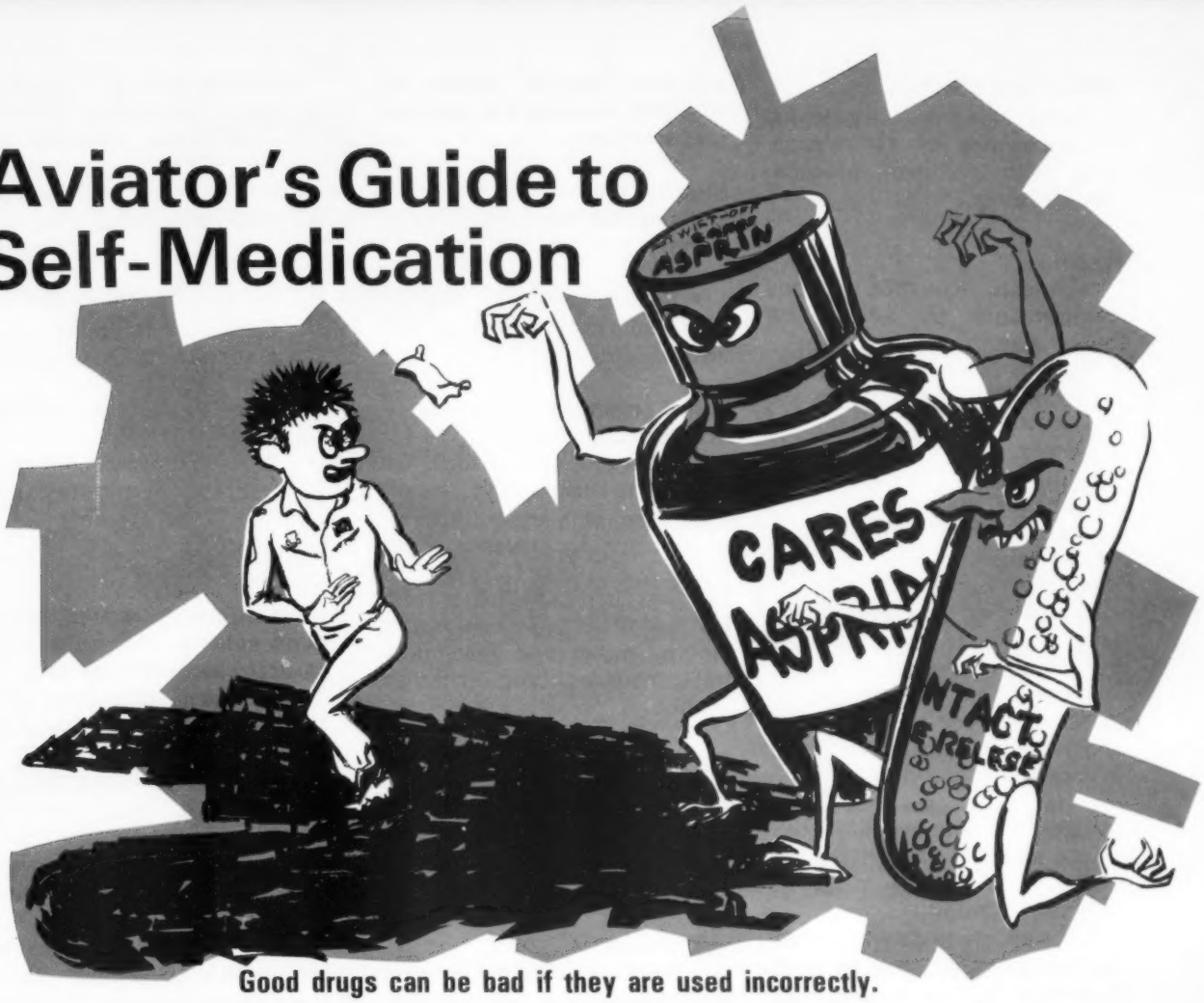
We know it takes a lot of thought and hard work to produce an article for the contest, so we make every qualifying entrant a winner by sending them a colorful C.R. Terror T-shirt and giving them a free one-year subscription to *The MAC Flyer.* To win your T-shirt, subscription and gain the personal satisfaction from an important job well done, follow these contest rules:

- Entries can be fact or fiction, poetry or prose, technical or philosophical.
- All stories must be double-space typed and submitted in two copies. Identify your entry by title only and attach a cover sheet that tells who you are, where you live, and your T-shirt size. Also, a biographical sketch of yourself will help us fill the "About the Author."
- Stories should be between 1,000 and 3,000 words long (about 6 to 14 typed pages). Poetry may be shorter.
- The contest ends 31 March 1980.

Here's a hint from the editors. We need stories that tell it like it is out there flying the line. "War stories" about accidents that almost happened—or really did—have always done quite well in the contest. We want the stories to have a safety message and appeal to our readers; grammar and spelling are not as important as content. We'd like to fill an "About the Author" box with *your* picture next year, so send your entry to:

Writing Contest
HQ MAC/IGFE
Scott AFB IL 62225

Aviator's Guide to Self-Medication



Good drugs can be bad if they are used incorrectly.

by Capt Frank E. Dully, Jr., MC, USN
and
Lt Lawrence H. Frank, MSC, USN
COMNAVAIRPAC, San Diego

Most individuals have the mistaken belief that if a drug can be purchased over the counter it is safe. Nothing could be further from the truth. Over-the-counter drugs can be just as misused as any prescription or illicit drug.

Drugs have four effects. The first is the intended effect such as the relief of a person's cold symptoms. Second, there are side effects which may be predictable or unpredictable. Often, however, the side effects are undesirable such as drowsiness or increased blood pressure. The third effect is the idiosyncratic effect. That is, different people react to the same drug differently, or the same person reacts to the same drug differently on different occasions. Fourth is the synergistic effect, where two drugs interact with each other, resulting in a larger effect than the sum of their individual effects. In a synergistic reaction, one plus one may equal four, five, or ten.

Drug effects are usually examined under conditions of normal pressure (i.e., sea level). But little research has been conducted on their effects in conjunction with altitude. The exact effects on over-the-counter drug has an oxygen-carrying capacity, G tolerance, or susceptibility to spatial disorientation are virtually unknown. Consequently, the reactions about to be described for some of the more common remedies should be considered best-case conditions. If anything altitude will probably dramatically accentu-

ate a drug's effects.

Listed below are the potential consequences of self-medicating with common over-the-counter drugs.

Aspirin

- Affects regulation of body temperature by acting on hypothalamus.
- Increases heat loss due to an increased blood flow to the extremities and increased sweating.
- Disturbs the acid-base balance of the body, causing variations in the rate and depth of respiration.
- Steps up oxygen consumption and carbon dioxide production which contributes to hypoxia and hyperventilation.
- Brings on nausea, ringing in the ears, deafness, diarrhea and hallucinations when taken in excess.
- Has a corrosive action on the stomach. Two aspirins on an empty stomach can irritate the lining enough to draw a teaspoon of blood.

A recent study demonstrated that patients taking aspirin prior to arterial bypass surgery had postoperative blood losses almost three times greater than those patients who had not taken aspirin before surgery. This indicates that if you are injured and have been taking aspirin, you may have a higher than normal blood loss. This could mean the difference between life and death in a survival situation.

Nasal Decongestants

Prolong increases in blood pressure and pulse, insomnia, fatigue, headache, dizziness, uncoordination, confusion, drowsiness, amnesia, possible depression, dry mouth, loss of accomodation (the eye's ability to focus); rapid heart rate, double vision (diplopia) euphoria, tremors, nausea and vomiting, diarrhea and gastrointestinal effects.

Sleeping pills

- Depress the central nervous system and automatic nervous system.
- Reduce alertness.
- Predispose aviator to heat stroke.

Throat Lozenges

- Damage blood cells.
- Increase potential for kidney and liver damage.
- Harm skin mucous membranes due to presence of alcohol.
- Can induce allergic reactions such as rapid swelling of mouth, throat and respiratory tract, thereby cutting off the air supply.
- Damage nerve cells if excessive amounts are absorbed.

Cough Drops

- Depress the central nervous system with high dosages.
- Reduce reaction time with high dosages.
- Have a probability for users overdosing. To supress the cough reflex, the drug acts on the cough center of the brain. But, to suppress the cough, you usually require a dosage three to four times higher than that recommended for adults.

Petroleum Jelly

Becomes crusty when exposed to 100 percent oxygen. If it is used to moisten dry-scaling areas of the mouth or nose, and then exposed to 100 percent oxygen, the petroleum-based product will become the texture of sandpaper. This can lead to severe nosebleeds and bleeding lips in flight.

Alcohol

- Reduces G tolerance.
- Predisposes to hypoglycemia (low blood sugar).
- Affects the inner ear and predisposes to spatial disorientation. This effect can last up to 48 hours.
- Depresses the central nervous system.
- Dulls critical judgment
- Releases inhibitions
- Decreases intellectual function.
- Decreases skilled responses.
- Decreases motor control.
- Decreases sensory perception.

Caffeine

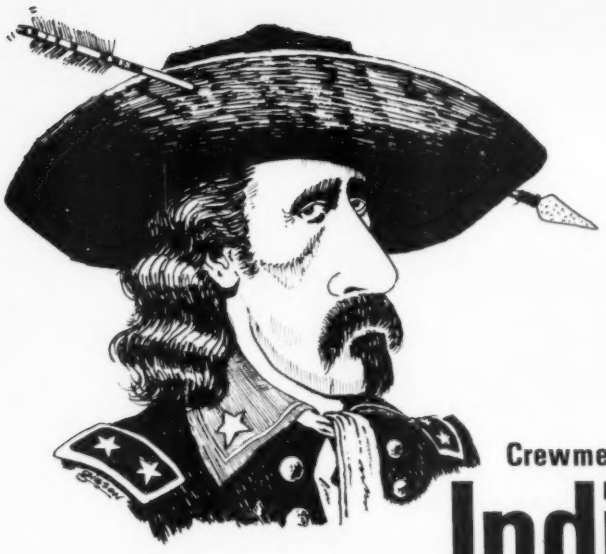
Wakefulness, tremors, gastric hyperacidity and indgestion cardiac arrhythmia, and increased heart rate; headache, dizziness and nausea. Also promotes body dehydration through increased urine output.

Nicotine

- Increases blood pressure.
- Constricts small blood vessels.
- Increases the need for oxygen 10 to 15 percent.
- Can increase reaction time to twice the normal time by paralyzing nerve cells.

As you can see, several of the more common drugs that we use for minor ills can have drastic side effects on people, crewmembers included. If you consider the probable consequences of dehydration, dizziness, incoordination, drowsiness, or cardiac arrhythmia during flight you can see why flyers should steer clear of taking drugs without the advice of a flight surgeon. If you're not feeling fit to fly, don't try to bypass mother nature's warnings with self medication.

—Adapted from *Approach*



Crewmembers are the key to safe flying in . . .

Indian Country

For General Custer, it was the Little Bighorn River valley, but for us MAC flyers, "Indian country" is that airspace below 10,000 feet that's replete with Apaches, Cherokees, Commanches, Navajos, Aztecs and numerous other small aircraft bearing "brave" trademarks. We present the following compendium of carefully contrived clues to help you keep safe while traveling through "Indian Country."

- Keep maps from covering any part of any window or casting a reflection on the glass.
- Accomplish as many cockpit duties as possible before descending below 10,000 feet.
- Do not level off at VFR altitude in order to decrease airspeed: Example—reduce speed at 10,000 feet rather than 10,500 feet.
- Review approach plates and charts enroute; don't wait until in a terminal area to start looking things up or it may turn out to be your "terminal flight."
- Strongly encourage jump seat riders to participate in the traffic watch.
- In VRF conditions, keep your seat adjusted and your eyes outside the airplane as much as possible for maximum external scanning.
- Keep a swivel neck—a lot of traffic approaches from the sides, from behind windshield posts, or from behind the glare of sunlight reflecting off the craniums of already "scalped" aircraft commanders.
- Be especially alert during weekends and holidays.

One more point: Picking out a moving aircraft against a cluttered background is not always a simple matter, even when aided by radar advisories. Many a pilot has had the frustrating experience of being asked repeatedly by the control tower if he has certain traffic in view, without being able to confirm. Conditions may be VFR, and the aircraft may be well identified and described as being "at ten o'clock, just about 300 feet below you," but you still may not be able to pick it out of the background.

If you are over a housing development or thickly settled section with smoke or haze in the air, the background provides a natural camouflage for these elusive bogies. A helpful technique for spotting aircraft under these circumstances is to hold your eyes momentarily on the area in question. Objects in motion against a stationary background tend to attract attention; if the eyes themselves are also in constant motion, this is less true. After this momentary resting of the eyes, you should resume a constant scan of all quadrants of the sky to protect yourself from those pesky airplanes."

—Adapted from *The Flight Deck*

Christmas on the Line

by Major James G. Gibson II
Supervising Editor

A cargo plane went thunderin' off December twenty-two
For a special trip to "Mouldy Hole,"
An easy run to do.
But the fates weren't smilin' on this crew
As they hurtled o'er the sea,
'Cause a mission change was in the works
Before their E.T.P.

A voice came up on comp'ny freq
Clear as a Christmas chime,
"When you hit the deck in England, boys,
There won't be lots of time.
You'd best be set to fuel 'er up
And press on hastily,
Cause there's special cargo waitin' there
That needs delivery!"

"I thought we had a chance at first,"
The AC said with gloom,
"To make it out and make it back,
And still have extra room
To be at home for Christmas
With the wife and family;
But this latest change
Has messed things up
And now that's not to be."

A scant three hours later
They crossed Belfast VOR
The sky was clear and all was quiet
On Erin's rocky shore.
Descent was smooth across the deep
And inky Irish Sea
"I say old chaps," the AC joshed,
"We're just in time for tea."

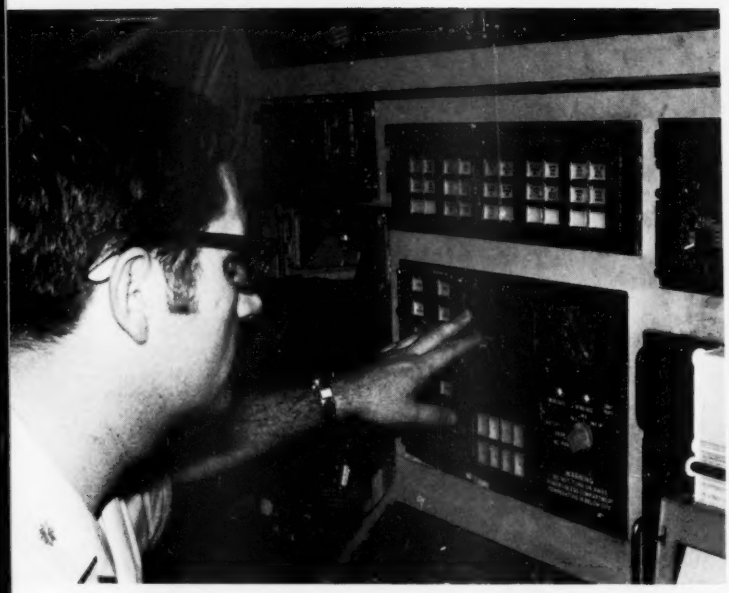
The E.T.A. for Mildenhall
Was hit right on the dot.
A host of people swarmed around
The airplane's parking spot.
The crew became suspicious
Of their new priority,
When they saw six colonels standing by
With the chief of A.C.P.

It only seemed like minutes
'Til their new load was strapped down.
While gas was pumped they ate and filed;
T'was min time on the ground.
Much quicker than it takes to tell
Four jets roared mightily.
And their plane screamed down the runway
Like an eagle just set free.

The crew had a diff'rent outlook now.
Each face beamed with a smile.
They'd seen the cargo manifest,
And they knew it was worthwhile—
To be so far away from home
And hearth and family,
And headed t'ward those foreign shores
Northwest from Galilee

No, this crew wouldn't make it back
In time for season's cheer
With loved ones, friends and neighbors,
And others they held dear.
They were flying east the long way
'Cross one of the seven seas
To play Kris Kringle 'round the Med
For the folks who keep the peace.

Holiday mail and gifts from home
Filled up their cargo hold.
And they were bringing yule tide cheer
More valuable than gold.
They'd had a change of plans all right,
But all were feeling fine,
In spite of spending this year's
Merry Christmas on the line.



Now They Wear Wings

by Capt Bill Sadler
451 FTS
Mather AFB, California

A WC-130 lurches through the turbulence at 10,000 feet above the churning ocean. The Aerial Reconnaissance Weather Officer (ARWO) steadies himself behind the pilot's seat and peers into the worsening clouds. Wishing he could see the surface below, he turns to the navigator. "Nav, weather here, what kind of winds do we have?"

The navigator punches numbers into the Omega computer and reads the lighted display, "Looks like 281 at 90 knots."

"Well, that closes the wind pattern circulation, if only—"

"Weather, pilot, it's clear below," interrupts the AC.

The weather officer jumps to the cockpit window aft of the pilot's seat. The water below is torn into a ragged patchwork of green streaks and white caps whipped by the raging wind "Wow! Look at that spray. That's at least 50 percent green water. Gentlemen, meet Sylvia, we have a hurricane!" The ride becomes rougher, and he drops into his seat and begins documenting his observations.

The Hercules ventures further into the tightening spiral that leads to the center of the storm. The navigator sits hunched over his radar set. With one hand he

shades his eyes from the outside light, with the other he adjusts the set to crystal clarity. Scanning the picture his eyes narrow and his attention rivets on one section of the scope. "Weather, nav, come take a look at this."

The ARWO leaves his calculations and joins the navigator at the radar scope. Together they analyze the curving lines of thunderstorms they have been dodging since entering the storm. "That looks like it at two o'clock," announces the navigator as he takes a quick look at the Doppler and gives the pilot a minor heading correction. By equalizing the true airspeed and the groundspeed, the circular winds are placed directly off the wingtip which aims the Herk straight at the center of the tropical cyclone. As the nose of the aircraft swings around, the picture on the scope changes. Suddenly, behind a thick ring of thunderstorms a circular clear spot appears. "There it is dead ahead! Hang on, crew, we're going in."

Until now their journey into the hurricane has been a perfectly choreographed performance of twisting turns and subtle maneuvers. Ahead lies the swirling ring of unbroken thunderstorms known as the eyewall. There is no way into the eye except through it and the shortest distance is a straight line. The graceful ballet is about to become an off-tackle plunge into the end zone.

The ARWO sits down and pulls his straps tight. In the cargo compartment, the Dropsonde System Operator, an enlisted weather observer, has prepared a small cylinder of meteorological instruments to be released into the eye of the storm. The engineer turns the thunderstorm lights up full bright and pulls the throttles back to hold penetration airspeed. The pilots tighten their two-handed grip on the yoke. The navigator sings out one final warning, "Five seconds!" and grits his teeth. Now comes the contest of technology against nature. The sturdy Herk and well-trained crew are pitted against nature's most formidable fury.

In an instant, the thunderstorm's downdrafts slap the aircraft several thousand feet toward the ocean. The crew is thrown against their harnesses. A forgotten cup of coffee hangs momentarily weightless then splashes to the floor as the plane is tossed skyward by the giant storm. Suddenly, it's black outside and the Herk's aluminum skin becomes a kettledrum for sheets of rain that pound against it. The plane bucks and pitches as the crew battles the hurricane for control of their destiny.

As abruptly as it began, it is over. The Herk wrenches free of its tormentor and slips from the darkness. The sudden brightness is blinding, but as their eyes adjust to total sunlight, the crew gazes upon what few men will ever see: the calm clear eye of nature's most awesome phenomenon. From the still waters below to the blue sky above, the eye is a vertical tunnel of rising heat and astonishing brilliance. It is a sight never to be forgotten—for a moment everyone grins.

The weather man springs into action. "Nav, get me a max wind. Pilot, that looks like the surface center at ten o'clock. Drop, five seconds to release."

The ARWO is the mission director in the vicinity of the storm and bears responsibility for the successful compilation and transmission of the all-important data. A professional Air Force meteorologist, he is also a fully qualified crewmember. He is trained in accordance with 51-series regulations like pilots and navigators, maintains currency, and receives flight evaluations like other flyers. In his green flight suit he is indistinguishable from the rest of the crew except that he alone does not wear wings.

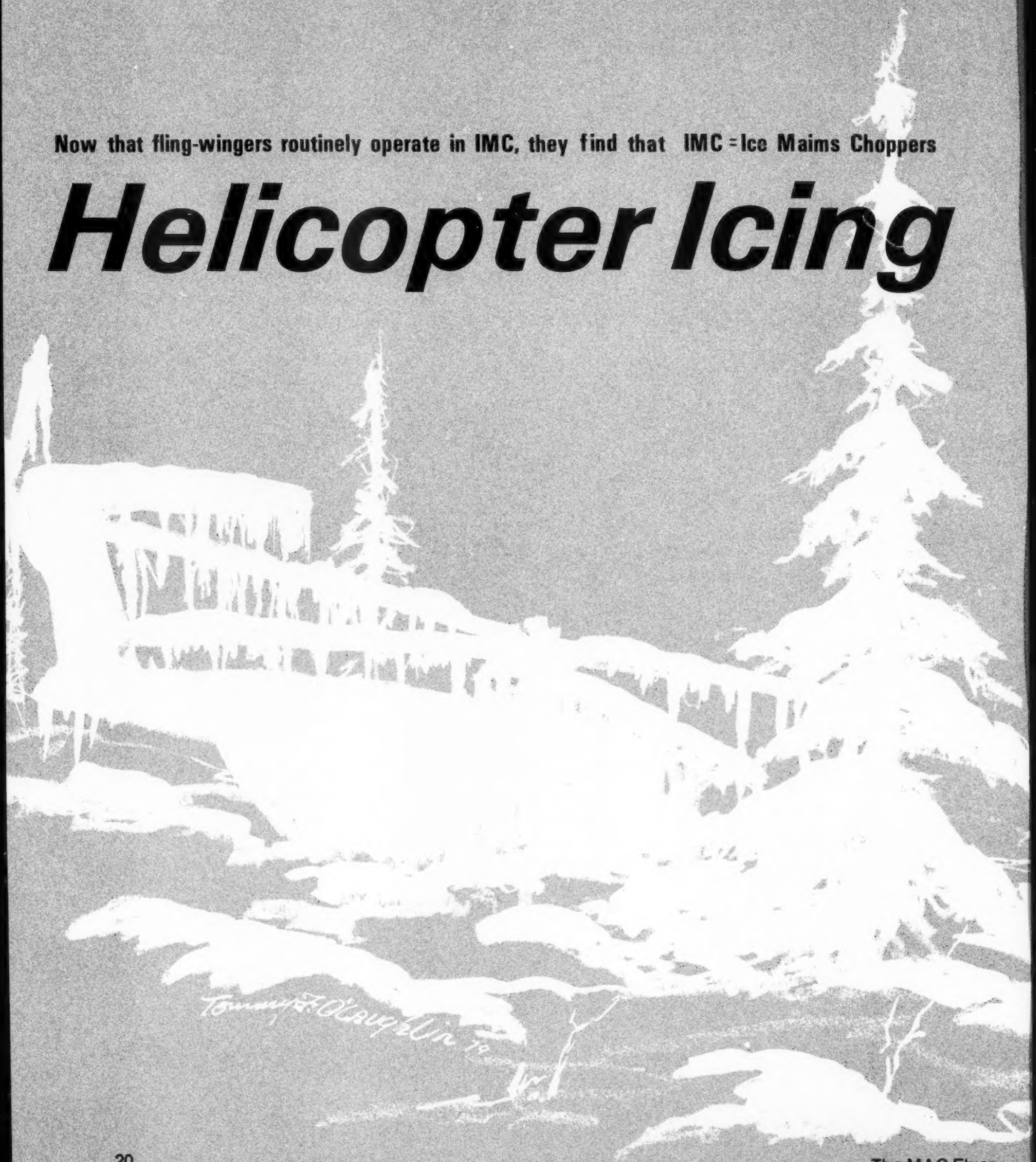
Since a base weather officer talked a pilot into flying an AT-6 Texan into a hurricane off the Gulf Coast of Texas in 1943, hundreds of weather officers have challenged nature as few others ever will. Most have accumulated thousands of hours of flight time and dozens of hurricane penetrations, but since 1963, none have earned wings because there was no provision for nonrated flying officers. Finally, after numerous proposals over the years had been rejected, the Air Force Uniform Board recently approved a new set of wings, the Nonrated Officer Aircrew Member Badge.

Along with about 500 other nonrated officer aircrewmembers, the ARWOs will pin on their wings as soon as they are available for purchase. Active duty ARWOs fly with the 53d Weather Reconnaissance Squadron, Keesler AFB, Mississippi or the 54th Weather Reconnaissance Squadron, Andersen AFB, Guam. Reservists fly with the 815th WRS, also stationed at Keesler.

Whether they call themselves Hurricane Hunters, Typhoon Chasers, or Storm Trackers, all the ARWOs will be enjoying a new equality. Now they wear wings.

Now that fling-wingers routinely operate in IMC, they find that IMC = Ice Maims Choppers

Helicopter Icing



Traditionally, in-flight icing has been given only passing consideration as a limiting factor in helicopter operations. The underlying rationale for this philosophy was that icing is primarily a problem resulting from flight in instrument meteorological conditions. Since most helicopters were not capable of instrument flight, there was little justification for spending time and resources on this aspect of rotary wing operations.

Contemporary helicopters, however, have progressed beyond the traditional role of flying only in visual meteorological conditions and now routinely operate in IMC. This expansion of the helicopter's operating envelope compels a more thorough understanding of the hazards associated with in-flight icing.

Typically, we have characterized icing problems by their effect on fixed wing performance—things like lift, weight and thrust. In-flight icing reduces thrust and lift and increase drag and weight, all to the detriment of an airplane's performance.

Rotary wing aircraft also suffer from these effects, and, in addition, are susceptible to additional complications that are not common to fixed wing aircraft.

Deterioration of Autorotational Qualities

The adverse effect of main rotor icing on autorotational performance went unnoticed until comprehensive icing tests were conducted by the U.S. Army in 1974. A major finding of this research was that moderate ice accumulation (approximately one-half inch) on the rotor blades of the UH-1 and similar aircraft was sufficient to preclude a safe autorotation in the event of an engine failure.

This abnormality results from ice accumulation in greater amounts near the inner portions of the rotor disc. This directly affects the blade's efficiency with respect to upward airflows during autorotation. The reported result is that, with approximately one-half inch of ice on the main rotor blade's inner portion, minimum safer rotor rpm cannot be maintained during autorotation.

Helicopter pilots are cautioned not to judge or estimate main rotor blade ice accumulation by observed buildup on the windshield or other parts of the aircraft, since icing occurs at an accelerated rate on the rotor blade as compared to accumulation on the fuselage. A more reliable method for operators of UH-1 aircraft to estimate ice buildup on the main rotor blades is monitoring power required (torque indications). Researchers found that blade icing of one-half inch or greater was accompanied by a five to six psi torque increase over the "no ice" power requirement.

This phenomenon does not appear to be unique to the UH-1 and deserves the attention and consideration of *all* helicopter operators.

Ice Shedding

Many helicopter pilots are inclined to disregard potential hazards of main rotor blade icing owing to the in-flight "shedding" of ice. In-flight shedding can and does occur, but unfortunately, it is as likely to create problems as it is to relieve them.

Symmetrical shedding, which affects all rotor blades simultaneously, can be beneficial by restoring the rotor blades to a more efficient or clean configuration and by reducing the weight of the aircraft. Asymmetrical shedding, on the other hand, can create extremely severe vibrations, depending on the amount of ice discharged, type rotor system and other factors.

The severity of vibrations resulting from asymmetrical shedding are generally a function of the unbalanced weight of the rotor system. Therefore, they may be greater for semirigid (two-bladed) systems and three-bladed, fully-articulated systems than those rotor systems employing four, five, or more main rotor blades.

In short, the severity of vibrations resulting from asymmetrical main rotor shedding can be

extremely hazardous, but operators can expect the vibration levels caused by asymmetrical shedding to decrease with an increase in the number of main rotor blades since the imbalance represents a smaller percentage of the rotor mass. Conversely, vibration levels may be considerably greater when asymmetrical shedding occurs on two- and three-bladed systems.

Ice shedding from the main or tail rotor can also produce problems apart from an unbalanced rotor system. Though documentation is less than authoritative, researchers have expressed a concern for structural or foreign object damage (FOD) to the helicopter's fuselage, rotors or engines resulting from rotor blade shedding. This particular hazard appears to be more threatening to large multi-engine aircraft (over 12,500 pounds) and especially tandem rotor systems.

Asymmetrical shedding can be minimized by avoiding static temperatures lower than minus five degrees C. Research indicates that when operating in environments of minus five degrees C or warmer, shedding generally occurs symmetrically. Tests of UH-1 aircraft suggest that rapidly varying main rotor speed or entering autorotation usually induces symmetrical shedding when static temperatures are minus five degrees C or warmer. Collective and cyclic inputs were generally ineffective in producing symmetrical shedding and sometimes resulted in asymmetrical shedding. At temperatures below minus five degrees C, it was not possible for the pilot to induce shedding.

Icing Conditions

Aviation weather education has oriented pilots to think of aircraft icing as a function of the following two atmospheric conditions that must prevail simultaneously:

* Free air temperatures at or below freezing (zero degrees C).

* Supercooled visible liquid moisture or high humidity.

Though this information provides some insight into aircraft ice formation, it represents only a meager perspective of the total icing environment picture for operators of rotary wing aircraft.

The inherent limitations of rotary wing aircraft (service ceiling, range, endurance, speed and power availability) and the previously discussed icing hazards require a more comprehensive understanding of in-flight icing conditions and their relationship to helicopter operations.

Research studies indicate that in-flight encounters with icing conditions occur most frequently in the vicinity of frontal zones. In addition to the threat of icing in frontal clouds, such systems also create the necessary conditions for in-flight icing outside of clouds.

Warm front icing may occur both below and above the frontal surface. Freezing rain or drizzle can be produced by precipitation falling through the front into subfreezing cold air below. This particular form of icing is most often found when the temperature above the frontal inversion is greater than zero degrees C and the temperature below is less than zero degrees C. Where temperatures above the frontal surface are subzero, ice pellets or snow may be noticed below the front and are normally not of concern to helicopter operators.

Icing in the clouds above the warm front's surface is characteristic of icing found in stratiform and stratocumulus clouds and usually consists of rime or mixed rime and clear ice.

Cold front icing normally occurs in areas preceding and following the front. In these regions, aircraft are likely to encounter the most intensive icing in clouds immediately above the frontal zone. Aircraft penetrating a cold front can expect clear icing to be prevalent in the system's clouds at the lower altitudes (surface to 15,000 feet MSL) and a mix of clear and rime ice at higher altitudes.

Freezing rain or drizzle may also be experienced in a "shallow" or "slow-moving" front where the warm air is lifted over the advancing cold front. This condition often produces clouds and precipitation well behind the surface position of the front. Upon falling through a subfreezing cold front, the rain becomes supercooled and freezes on impact with the aircraft.

Aircraft icing is more probable and severe over mountainous or steep terrain than over low or flat elevations. The presence of a mounain range causes strong upward air currents on its windward side which are capable of supporting larger than average water droplets and thereby compounding the icing hazard. The movement of a frontal system and its associated turbulence across a mountain range, with the severest icing occuring above the crest and to the windward side of the ridges, creates an extremely hazardous environment for rotary wing aircraft.

Increased awareness of the conditions which spawn severe icing conditions and the effects they have on helicopter peformance can improve your chances of avoiding that undesired and unscheduled stop.

—Adapted from *Aerospace Safety*

Andrews AFB

Maryland (elevation 279 feet)

DEJAVU

Located nine miles southeast of Washington, D.C., Andrews AFB is the main military aerial port for the National Capitol area. Heavy air traffic in the Washington TCA requires both careful attention to ATC instructions and a sharp lookout. There are nine airfields and numerous heliports within 15 miles of the base. VFR traffic operating around the fringe and under the floor of the TCA can be intense in good weather.

Andrews has two parallel runways, both over 9,000-feet long with high-intensity approach lights and VASI. Runway O1L/19R is the primary instrument runway and is served by CAT II ILS and PAR approaches. It also has touchdown zone lights and centerline lighting. The Air Force ramp on the west side of the field is occasionally congested with vehicles when U.S. and foregin VIPs are arriving and departing.

Noise abatement procedures require a climb to 1,500 feet as soon as safe after takeoff. Prior planning for your arrival, including an early check of FLIP approach books and the Washington Area chart will give you more time to scan for other airplanes. Also checking the ATIS as far out as possible will keep you from being surprised by runway closures or quiet periods because of arriving or departing dignitaries.

—Adapted from ISD-Q6-458

On final approach to runway 01L, USAF ramp is to the left.

Runway 19L, seen from two-mile final, is 50 feet narrower and 455 feet longer than 19R. This may cause a visual illusion, making it look longer than it is.

Final approach to 19R is over a shopping center. Helicopter traffic over the west ramp (to the right) is occasionally heavy.

The Pudgy Pilot proves that an overweight airlifter is loaded for trouble.

C.R. TERROR

The minute the crew bus pulled up in front of his Starlifter, the Ace of Aerospace could tell by Sergent Downs' frown that all was not going well.

"Sir, I've been out here for four hours already and the loading just isn't going right," the beleagured loadmaster blurted out in frustration as C.R. stepped off the bus.

"What seems to be the trouble?" queried the Portly Pilot solicitously as he and the upset palleteer routestepped to the rear of the C-141.

"For two-and-a-half hours

after I got here this morning, no one could even locate the stuff they had manifested to go on our bird; and when they finally did find it, it took another hour and a half to get it out here and into position for loading," explained the sergeant.

"I can understand your concern," soothed the Silver-Toungued Skipper, "but you know as well as I do that we can't expect the same kind of service on an exercise out here in the boonies as we would get at a fullfledged aerial port. I'm sure the troops here are doing the best they can under the circumstances."

"That may well be, Boss, but I have some serious reservations about this load and the paperwork that goes with it," returned the loadmaster steadfastly.

Looking over the lineup of cargo waiting behind the rear ramp and door to be onloaded, C.R. couldn't help himself from sharing Sergeant Downs' concern. "It is a rather motley assortment, isn't it?" he observed while walking by the first of two close-coupled communications vans with a formidable array of chains and locks on their rear doors, a fork lift and a mud encrusted jeep.

"The jeep and the trailers are not Air Force," commented Downs as he followed along in C.R.'s shadow. "I tried to get 'em to clean up the jeep; and I wanted to check on what's inside the vans, but nobody can find any keys for all those locks."

Kicking a tire on the olive drab military "convertible" with his patent leather flying boots, the Aviatior with Avoirdupois unleased a veritable avalanche of mud chips. "This vehicle is a bit ratty all right," he admitted, "but I can't see any percentage in hassling these people on the trailers. They were weighed, weren't they?"

"Let's just say there are numbers on the form in the blocks reserved for weight—how accurate those numbers are is a horse of a different hue as far as I'm concerned," persisted the skeptic of the cargo compartment.

"What, exactly, do you mean?" asked the puzzled AC.

"Well, for one thing, Boss, did you notice the way the springs are compressed on the axles of the vans? Both of them are clear down on the overloads, which makes me suspicious that they weigh more than what the manifest says. Anyway, I'd feel a lot better if I could see for myself—I don't like the idea of getting stuck with a pig in a poke."

"Your caution is commendable, m'lad," gushed the Rinestone Flyboy with an ingratiating pat on the back for his suspicious sidekick, "but the vans are probably just old and the springs have sprung. If you want to ease *my* mind, check the jeep and make sure the fuel tank and the jerry can on the back are within limits. Remember, we don't want to spend New Year's Eve here, so let's head 'em up and move' em out."

"I'm doing it . . . but I'm not liking it," muttered the unhappy loadmaster as he waved the cargo handlers back into action from an extended smoke break on the side of the ramp.

Long Suffering Sam made a mental note to himself that it took quite a bit more power than usual to move the Starlifter out of its parking spot, but said nothing about it as he ticked off the responses to Sergeant Torgue's checklist challenges from the right seat, second row. By the time they reached the takeoff end of the runway, through, he couldn't help passing a comment.

"Boy, this old bird really feels sluggish today. Be sure and give me an extra good check on the engines, Sergeant Torque." Since it wasn't his leg, the Somnambulistic Skipper was barely half-awake in the right seat by the time the engines were run up and the FE pronounced all systems "A-OK."

Nosing the big airlifter out on to the rubber-streaked runway of the forward operating base, the intermittent left-seater advanced the throttles and the Starlifter grudgingly began lumbering forward. C.R., temporarily revived for the takeoff, alternately eyeballed the TOLD card and the airspeed indicator as the plane picked up momentum, and at 115 knots, barked "Go!"

Sammy eased back on the yoke and felt resistance as the control surfaces bit into the air, but the big bird failed to respond in any way to the inputs that normally initiate liftoff. Increased pressure on the yoke raised the younger pilot's adrenaline level, but not the Starlifter's nose. Passing the 8,000-foot marker on the 10,000-foot runway, Sam's knuckles were white and his face alternated between crimson and clay in color as the 141 continued gaining speed but refused to depart the macadam.

"Some thing's wrong, Boss. She still won't lift and we're rapidly running out of pavement."

"My airplane," announced the Paunchious Pilot futilely cobbing the throttles a last inconsequential millimeter forward and hauling back on the yoke for all he was worth. But the aluminum overcast was already rocketing through the overrun by the time the ground-hugging hulk hoisted itself off terra firma ever so slightly.

Even though the Ace Airlifter flipped up the gear handle while

the A-model airframe was still in ground effect, the main wheels managed to wipe out three banks of approach lights before tucking into the wells. Five-hundred yards further, passing over a trailer park, the screaming Starlifter clipped off the community TV antenna and scrambled the dishes in the cupboards of all 37 units in the mobile home manor.

Sam was still ashen and shaking visibly by the time the 141 had finally strugged to a safe altitude, but the Slipper of Surly Bonds was undaunted. "I'll never understand why they let people build trailer parks and stuff off the end of runways," he carped, ignoring completely the fact that they had just been inches and seconds away from buying the farm. Everybody else was speechless for quite a while before Sergeant Downs finally broke the silence, "I'm calling for a reweigh of our load when we get to McTraverton."

Aside from blowing a tire that had been sliced down to the cords when it connected with the third approach light stanchion on the semi-disastrous takeoff, the landing at McTrav was uneventful. Sam had regained his composure and handled his temporary left seat duties with his usual degree of finesse despite the blowout. When Sergeant Downs lowered the crew entrance door after engine shutdown, three colonels hiatus was over. Three colonels almost trampled the hapless LM in their haste to get up to the cockpit. "Who's in charge here?" demanded the first and meanest-looking full-bull as he spied a captain in the left seat and a major in the right.

"Ahem, I am, sir," sputtered the Silver Toungue-tied Aviator through the near strangle-hold of nervous phlegm in his throat. Quickly opting for the best defense is a good offense policy, C.R. managed to blurt out, "I want to get a reweigh on our car . . ." before he was cut off in mid syllable by the lead colonel's clipped command, "Come with us, major!"

Not sure what to do in the wake of their Fearless Leader's abrupt abduction, Sammy and the rest of the crew sat in the cokpit for half an hour speculating on the direst of consequences. When the copilot couldn't stand it any longer and called the command post, the controller advised him to "Sit tight. There are special offload and reweigh people on the way out to your airplane."

The cargo specialists arrived post haste, and the vans were quickly offloaded, taken to the aerial port scales and then placed in a special secure holding area. Meanwhile, the crew was summoned on VHF by the command post and told to check into transient quarters and wait.

Late that afternoon, Sam answered a knock at his door to find a very bedraggled looking C.R. standing outside it in his green bag. A large crescent of sweat outlined each armpit. "How'd it go, Boss?" asked the anxious copilot as he ushered his AC in and offered him a chair.

"Not as bad as I expected at the outset, m'boy, but not altogether great either," came the reply. "In fact, until we got the results from the weigh-in on those vans and checked them against the manifest, I thought I was a gone goslin."

"What was the story; were they overweight?" pressed Sam while C.R. paused to heave a deep and ponderous sigh and fumbled with his ebony cigarette holder and a gold-ring Egyptian Oval.

"Well, although they were each listed on the paperwork at 7,000 pounds, those little beauties tipped the scales at about 4,000 pounds more than that. They may have wighed seven grand originally, but when the Security Police cracked the chains and opened 'em up, each one was chock full of batteries, transformers, motors and various and sundry other heavy electrical components somebody had packratted into them."

"That means we were about 8,000 pounds over-grossed on takeoff,' observed Sam in amazement.

"Eggs-zactly! You've got a good head for 'figgers' kiddo," said Pudgy Pilot sarcastically. "Now, see if you can calculate how long it will take me to pay for 37 sets of dishes and glassware, a 125-foot TV antenna, three banks of approach lights and an aircraft tire."

"You mean you're going to have to pay for all the damages?" Sam asked incredulously.

"Well . . . probably not," speculated the Perry Mason of Pilotdom. "Considering the extenuating circumstances that the manifest was manifestly in error, the cargo handlers and whoever loaded up those vans without telling anybody have to share some of the blame for this little peccadillo."

"You're right there, Boss," concurred Sam, "But wasn't Sergeant Downs sort of skeptical about those vans in the first place?"

"Say no more, m'boy, say no more," interrupted the Unsinkable Skipper, "Let us retire to the O'Club and drink a toast to the upcoming Squadron New Year's Party. With any luck at all, we'll be home in time to ring in the next decade with our fellow flypersons!"

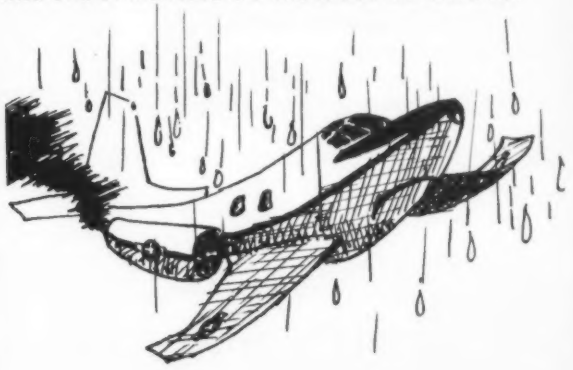
QUICK STOPPERS

Fickle Finger Department

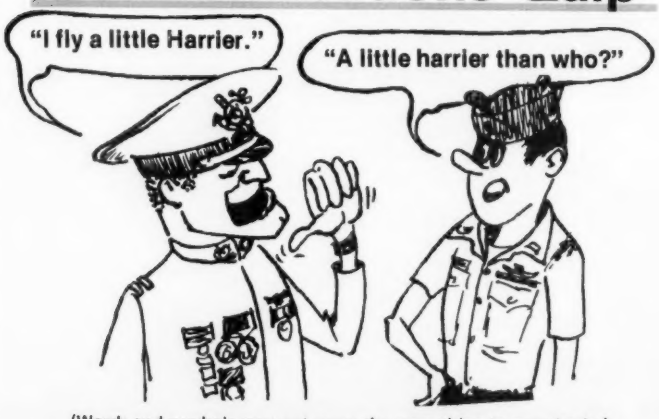
On a local trainer, after rolling out on short final during a simulated single-engine circling approach, the C-9's ground proximity warning indicator sounded off. In attempting to silence the audible portion of the alarm, the copilot decided to use flap override. Instead, he accidentally flipped the wrong switch and deployed the CPI. It should be pointed out that the CPI releaser is very close to the flap override switch on the aircraft's overhead panel, but it is normally covered and safety wired. According to the copilot, however, neither of the two built in deterrents offered enough resistance to prevent him from the accidental activation. Just goes to prove that it's always a good idea to double-check before you joggle a toggle.

Flameout in the Rain

Soon after leveling off at 370 in a high stratus cloud formation, a CT-39 encountered moderate turbulence and a heavy, intense rainshower. Five seconds later, the crew noticed number two engine had flamed out. They declared an emergency and descended to FL 250, where they made a successful airstart and continued the mission without any further problems. Flying a CT-39 in IMC without airborne weather or radar advisories can definitely be detrimental to engine performance if you are unfortunate enough to fly into one of Ma Nature's imbedded waterworks.



Communications Quip



(Words and symbols may not mean the same thing to everybody.)

Cantankerous Cargo

Bad things seem to come in bunches these days, and poorly prepared cargo that goes bananas in flight is no exception. Witness the following:

• Twenty minutes enroute, fumes alerted a C-141 crew that an F-111 engine on board was dripping fuel. Before the flight could be terminated, the drip had increased to a deluge and the crew was forced to don oxygen masks. Shipping documentation and certification of the engine were questionable, but nobody questioned them enough, evidently.

• An HC-130 crew with aircraft pressurization problems noted a hydraulic leak from a trailer onboard. They returned to base, and next day the trailer, which was checked and found to have an overserviced hydraulic reservoir, was loaded aboard another C-130. Soon after takeoff, the trailer began leaking again. Luckily, maintenance troops on board with the equipment came to the rescue by opening the relief valve, which halted the leak. Turned out the trailer had not been serviced properly before either flight.

• Despite the certification that it had been drained and purged IAW pertinent directives, an aircraft engine onboard a C-5 began leaking after the Galaxy was depressurized to a cabin altitude of 11,000 feet due to a pressure door warning.

• A leaky engine was discharged at an intermediate destination where it was cleaned up and sat for four days in a storage yard. During the wait the leak didn't reoccur, and nobody bothered to check further or mention to anybody else that it had been leaking before it was loaded on a C-5 for further shipment. Sure as shootin', as soon as the Galaxy was enroute, the engine started dribbling again.

Might save a lot of problems in flight if loadmasters, and aircrew members in general, would be more skeptical and at least spot check cargo—especially engines and vehicles with fuel or oil tanks that may not be as clean and dry as the paperwork indicates.

De-energized Engineer

As soon as the C-130 was established at FL 230, the engineer spied the cabin altitude indicator passing through 8,000 feet at a slow but steady rate of increase. He cleared off headset and went to the cargo compartment to see if he could uncover a hole in the aluminum balloon. Finding a leak near the ramp area, he also found he was breathing rapidly and feeling light-headed and dizzy. The oxygen-starved gage gazer managed to make it back to the flight deck, where he discovered the rest of the crew contentedly sucking on oxygen as they waited for the Herk to descend to a lower altitude. While he had been in the rear, the cabin had "climbed" to about 14,000 feet, which is enough to take anybody's breath away. Luckily, the engineer was pronounced unharmed by flight surgeons back on the ground, but he did get a first-hand lesson on why our cargo aircraft have walkaround bottles for use anytime there is a question about proper pressurization or suitability of the air supply.

AFTER DEADLINES

AVOIDING LIGHTNING STRIKES, and some things to do if you get hit, are the main topics of a new sound-and-slide program developed by AWS. The presentation, entitled "Lightning Strikes to Aircraft," lasts 15 minutes and tells you everything you might like to know about lightning strikes and electrostatic discharges. Base weather detachments should have a copy available for loan, or flying units can borrow it from the base film library. The AAVS catalogue number is STT-Q9-0113.

AIRCRAFT BATTERED BY TRAILERS. Ramps and floors are frequently dented and gouged by the support or "third wheel" on 1½-ton M-series trailers. Load plans list these vehicles as M-104, -105, -107, or -149. When the third wheel, made of formed steel and weighing about 40 pounds, falls free from its stowed horizontal position, it can damage the aircraft to the extent of causing loss of pressurization. Shippers are being told to secure the third wheel with a chain or strap, but until the word gets around, crews should check all trailers carefully before on or off loading.

HERCULES HELPED CONTAIN BIG FIRES in the Western U.S. this fall according to the U.S. Forest Service. Airdrop of Phos-check fire retardant from C-130's skimming the tree tops at 150 feet helped put out brush fires that were destroying thousands of acres in Southern California. Eight Herks from Air Reserve Forces in Texas, Idaho and California doused the fires with 30,000-pound loads of the cherry-red slurry. Using the modular airborne fire fighting system (MAFFS), which can be loaded into any Hercules' cargo compartment, the crews delivered the fire-fighting agent where it was needed most. Incidently, the retardant is also a fertililzer that helps green-up burned areas after the fire is put out.

MAC IS REVIEWING TACTICAL FLYING through a Headquarters project, Close Look II. A team of experts from all bases with tactical missions has assembled at Scott AFB to review present tactics and develop better ways to get the job done. They will visit C-130 bases and the C-141 units with an airdrop mission to get ideas from crewmembers. Also, they're looking at new and better equipment for tactical missions, and closer integration with the users of tactical airlift.

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Prancing & Pawing sounds, eh? Next, you'll be telling me you hear sleigh bells...